SBW Series

LARGE POWER FULLY-AUTOMATIC

COMPENSATION AC STABILIZER

USER'S MANUAL

1. INTRODUCTION..... 2

2. MODEL AND SPECIFICATION..... 2

3. SERVICE CONDITION.....3

4. LEADING COMPONENTS.....3

5. WORKING PRINCIPLE.....4

6. INSTALLING CONNECTION.....6

7. DEBUGGING OPERATIONG POWER ON..... 6

8.APPARENT SIZE.....8

9. OPERATION MAINTENANCE.....8

10. RANDOM FILE..... 8

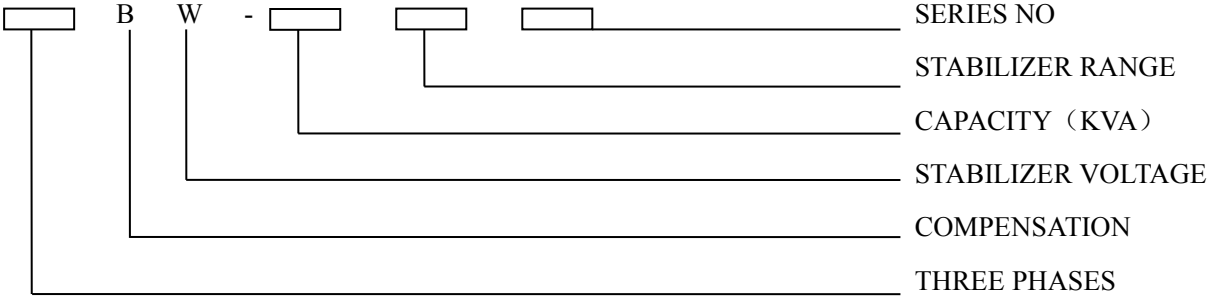
1. INTRODUCTION

The design of SBW series three-phase automatic segregated compensation electron voltage regulator has introduced western advanced techniques and combined with national condition to regularize AC voltage. When voltage fluctuates because of external power web voltage undulation or load change, the series can automatically maintain stability of output voltage. Compare with other style of Manos tats, the series feature large volume, high efficiency, no waved distortion, stable voltage regulation, wide load availability, and manual/automatic shift. The series can bear instant overload and can work continuously for long time and equipped with over voltage protection, phase protection, phase-order protection and machine hitch automatic protection function. Its advantage contains small volume, light weight, convenient installment and use, reliable implementation, and so on.

The application of SBW includes broadcast.telecommunication.medical.commercial.industrial.research.It system.laboratory marine.railways.aviation.utilities etc. It provides stable voltage power supply for telecom base station.medical equipment elevator.numerical-controlled machine.printing machine.production line etc.

2. Model and specification

1. MODEL AND MEANING



VOLTAGE STABILIZING RANGE:assure output voltage of stabilizer only change within precision range

INPUT VOLTAGE:**305—456V**

For Example: Capacity is 100KVA, Inuput voltage range from 305V to 456V, its model is SBW-100KVA.

2. Mains technical parameter

a. **Input voltage**:380V±20%

b. **Voltage stabilizing Precision**:<3%;

c. **Changing time**:<1.5s;

d.**Output Phase Voltage**:220V±3%;

e. **Frequency**:50/60HZ;

f. **Without additional distortion;**

g. **No phase shift ;**

h.**VoltageregulatedstablyNoinstantaneous :**power cut ;

i. **Endure instantaneous overload**;

j. **Start-up power on (option)**

Model	Capacity(KVA)	Output voltage (V)	Phase Current(A)
SBW-20	20	220	31
SBW-30	30	220	46
SBW-50	50	220	76
SBW-75	75	220	100
SBW-100	100	220	152

k **Over voltage(Phase voltage)**:250V±5V

l. **under voltage(Phase voltage):**183V±5V

Note: particular specifications have clients' need made to order。

3. SERVICE CONDITION

Normal service condition of SBW series stabilizer in door is following：

1.Operating temperature: 0℃_40℃；

2.Comparative temperature:Rh90% 25℃；

3.Altitude:<1000 meter；

4.There is no strict gas,vapour, chemical sediment, dirt and other blasting and eroding medium which affects stabilizer in the built-in location.

5.There is no strict libration and Jounce in the built-in location

6.User should negotiate with us when is not in accordance with above particular conditions.

4. LEADING COMPONENTS

1.Compensating transformer

When voltage magnitude and polarity of loop happen to change, it makes load loop bring amplitude value and alterable polarity compensating voltage transformer.

2.Regulated transformer

Transtat TUV is a self regulation voltage three phase autotransformer and has three auto symmetry slide brush. Servo generator bring brush to slide along bareness parts of winding of

the self regulation voltage three phase autotransformer, stably regulate the second voltage to reach to change compensated voltage and keep output voltage stable.

5. WORKING PRINCIPLE

1.SBW series three phases high-power segregated electric power stabilizer is made up of three phase s compensated transformer TB, three phases transtat TUV, voltage detecting unit, servo generator, transmission framework, contactor (breaker) manipulated circuit and protected circuit,etc,its electrical principle chart as following:

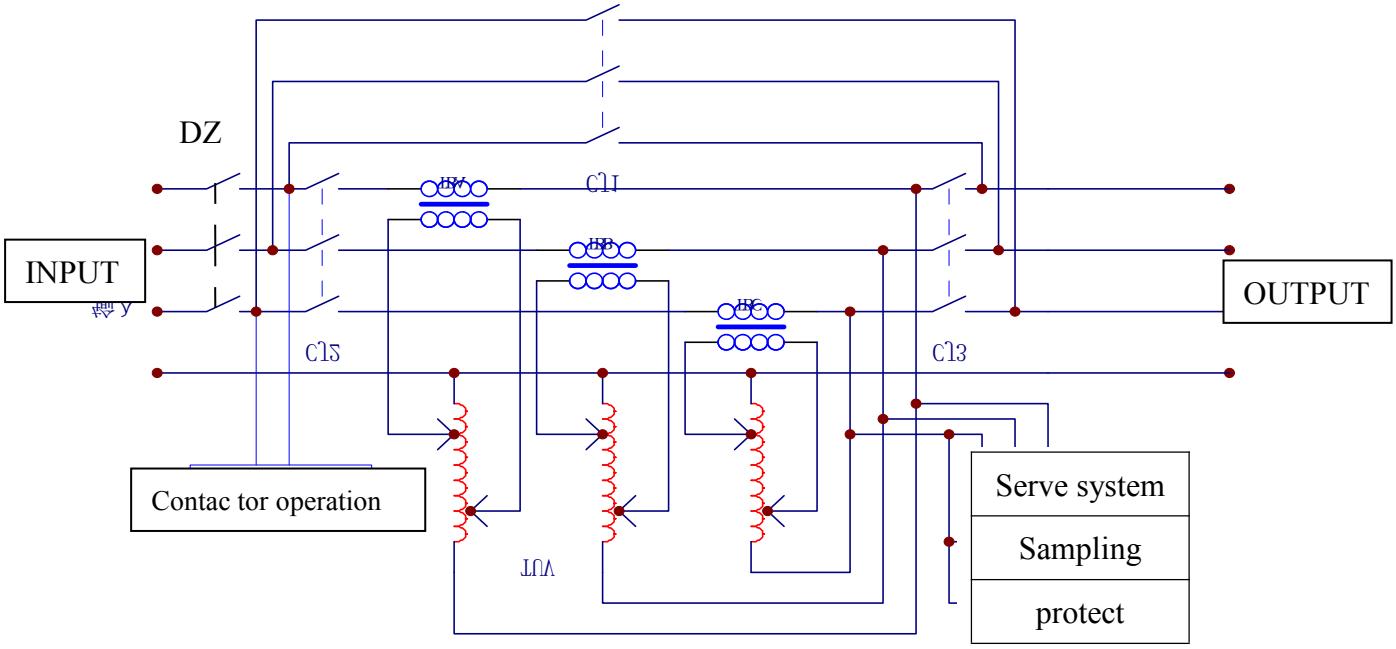
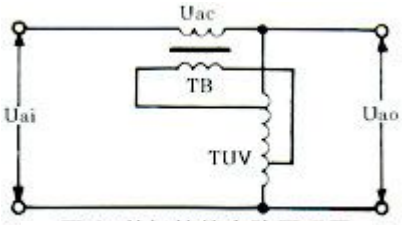


Chart 1.SBW series three phase high-power segregated electric power stabilizer

2.Chart 2 is a voltage compensated principle ,It is made up of contacting booster TUV and compensated transformer. Contacting booster connects output terminal of manostat and compensated transformer is in series with main loop. Take A phase for instance， it describes stable voltage's working principle. Following chart 2 .



Pic2 :Single phase sch

From Uao=Uai+ Δ Uac formular

Uai-manostat A phase input voltage;

Uao-manostat A phase output voltage;

Uac-mansotat A phase compensated voltage

Its Working Principle as follows:

When A phase Input Voltage Uai increase Δ Uai, compensated voltage Uac correspond to change Δ Uac and Δ Uac is equal to minus Δ Uai make output voltage Uao hold the line， by the same token B phase and C phase.

The process is stable voltage：

Based on variety of output voltage， Owing to voltage detecting unit sample, detecting and output signal control servo generator M run and drive transtat TUV brush group slide and modulate the second transtat to alter polarity and magnitude of compensated voltage, come true output voltage level off automatically to reach automatical voltage stabilization

3.Three phase segregated manostat's principle:

Three phase segregated manostat's features are three phases adjusting independently, the same with lopsided three phases input voltage, i.e. fluctuation of three phase input voltage is lopsided through mansostat may gain stable three phases, balanceable output voltage.

3.1.Main Circuit: it is made up of three independent compensated transformers and six transtats.

3.2. Each polarity and magnitude of compensated voltage of compensated transformer depends on each input voltage .

4.Control Loop

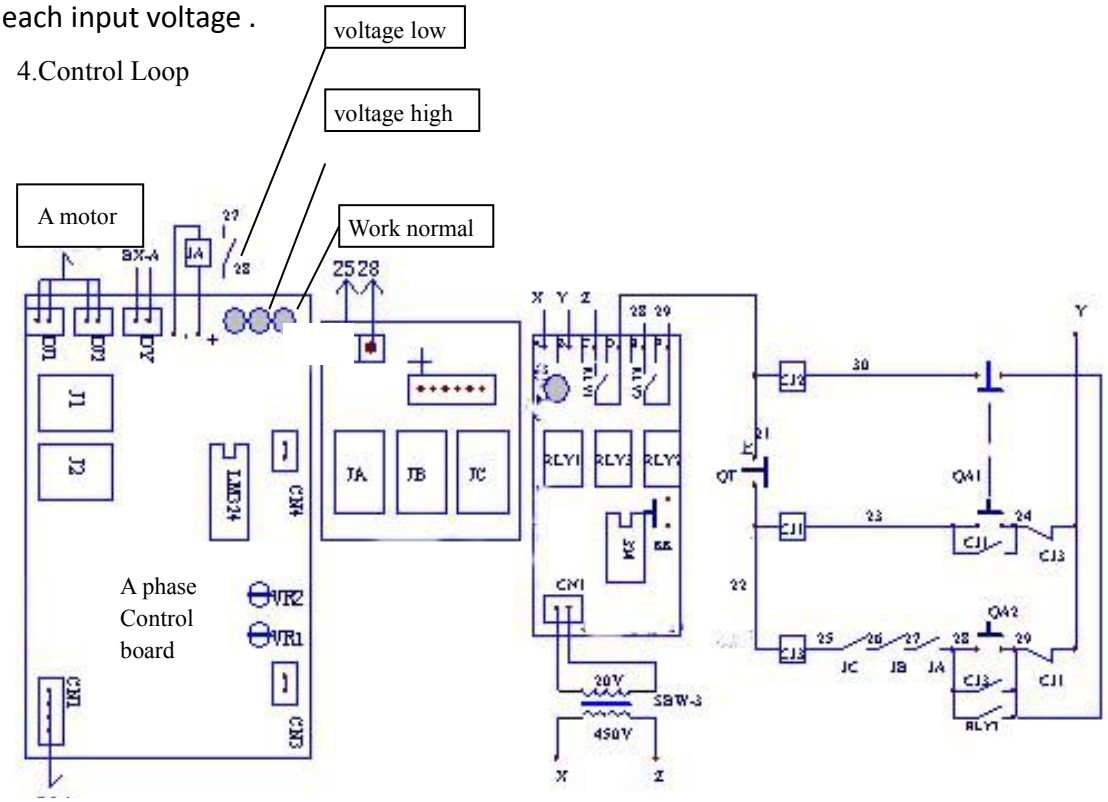


Chart 3.Controlling board and circuit of contactor

4.A phase controlling board（see chart 3） is made up of voltage detecting circuit and over voltage protected circuit.

Output voltage modulation (phase voltage) depends on potentiometer VR1 to adjust.

Over voltage and under voltage depend on potentiometer VR2 to adjust.

KK is a button which sends power automatically. When it starts, there is no sending power function, KK sends power automatically.

QT.QA1.QA2 is respective stop, mains and voltage stabilization buttons on the front panel.
Contactor CJ1 switchingin winding is in series with normally close contact of contactor CJ3，Contactor CJ3 switchingin winding is in series with normally close contact of contactor CJ1 to realize closedown. Therefore , whether manostat circulate straight through to converse voltage stabilization circulate or not? Must stop button QT to converse.
In series contact JA.JB.JC of protected relay on the contactor switchingin circuit, complete machine add DZ then JA.JB.JC attracting，contactor switching circuit may operate.

6. INSTALLING CONNECTION

1.Input connection：live wire of Input cable of manostat connect with terminal of light switch
2.Output Connection: Load wire respectively through current mutual inductor to switch on terminal of the medial AC contactor SBW-100K or above manostat pull on a cycle（200/5 current mutual inductor)；SBW-50K or below manostat pull on two cycles100/5，75/5，50/5 current mutual inductor)，Or current indicates uncorrectly.
3.Input Neutral wire：Neutral wire connect to hand insulated terminal of manostat, its crust can connect ground.
4.Three phase cables chose according to magnitude of machine. Following is for your reference.

Capacity（KVA）	20	30	50	75	100	180	225	320
Lead（mm^2）	6	10	16	24	35	90	150	240

5.After installing manostat, check connections to assure manostat run reliably. There are three notes as follows:
5.1.Whether lead connect fast and reliably or not, especially air switch and AC contacts.
5.2.Whether all connections of controlling circuit board are loose or not? If so, they must tighten.
5.3.Servo generator of transtat, connection of limit switch is reliable or not. If so, please solder tightly.

7. DEBUGGING OPERATIONG POWER ON

1.Electrify after checking with connections
2.Manostat's light switch DZ is on. If red indicated light is on in the phase sequence. So it is correctly. Whereas redeploy any two input cable to connect.
3.Here light indication of manostat's panel is on, indicated light of phase sequence is also on.

Please pressQA1 button, indication of input voltage of front panel is the same with input voltage table.

4.Please press stop button to shut down , then press QA2 plough into automatic compensated system. Here indicator is on. If it can't start up, phase sequence is wrong or lack of phase, then shut down, correct and turn on switch again. Output voltage regulates to voltage precision range

5.When manostat run under the voltage stabilization and start up, namely load shut down..

6.If you want to know output voltage, please circumvolve linear switch on the manostat's panel.

7.KK button must pressed on the phase sequence, if there is an auto start-up function

8.Well Modulating before Output voltage adjusting and under voltage setting

9.Ordinary faults and solutions：

No	malfunction	Cause	Solution
1	No Start-up	1.Phase sequence of Input connection makes a mistake or Electric power is deviant. 2.Brake doesn't be off or is attaited	1.Redeploy cable 2.off-brake or Replace air switch
2	No stabilization	1.controlling connection board is attainted 2.Generator is attainted 3.Mechanism system fault 4.Load feed back higher harmonic	Item 1.2.3 must repaired or changed Sampling transformer power of item 4 adds filter and purified signal.
3	Action of Stable voltage has a direction only	1.Switch normally closed contacts plough or attainted 2.Controlling board is attainted.	Replacing
4	No output Voltage	1.Stop pressing QT button 2.Stable voltage QA2 contacting shatter 3.Contactor CJ2,CJ3 shattered On the main Loop 4.Fault protection	Item 1.2.3 must repaired or changed Whether Item 4 has faults or not.
5	Continuous off-brake	1.Under voltage must be not adjusted on the Controlling board 2.change resistance on the controlling board	Adjusted and repaired by professional

8.APPARENT SIZE

Appearances	Capacity (KVA)	Dimension (k*w*h)mm
Single Cabinet	20	485*730*1135
	30	485*730*1135
	50	570*810*1430
	75	1620*890*1560
	100	1620*890*1560

9. OPERATION MAINTENANCE

According to different operational environment, maintenance cycle has biggish discrepancy, but it is not more than 6 months. Normal maintenance is following:

1.Quite clearing all parts of stabilizer to not remain dust and dirt， especially nude brush and contacting adjustor. Brush glide guide strip and shift gears must be cleared with gasoline and woven fabric of cotton

2.Replace attrited brush;

When user find faults or destroyed components, it must be mended or replaced timely.

3.Maintenance recordation

10. RANDOM FILE

1.USER'S MANUAL

2.Products Warranty Card